

NEW CONSTRUCTION AT A GLANCE

PROGRAM OVERVIEW

Tacoma Power can help optimize the design and performance of your new building by funding up to 100 percent of the incremental cost for energy-efficient equipment and design beyond the state energy code.

INCENTIVES: 20 cents per kilowatt hour for the first year of energy savings beyond the energy code or standard industry practice for equipment not covered by the code.

PROJECT OVERVIEW

AMERICOLD GOALS

- Construct energy-efficient facility
- Improve energy efficiency of older facilities using methods in place at Americold Tacoma

EQUIPMENT INSTALLED

- LED warehouse lighting
- Computer refrigeration control system and variable frequency drives (VFDs) on evaporator fans
- Upgrade new screw compressors for improved efficiency
- Separate ice cream freezer suction
- Increased evaporator coil capacity
- Efficient hot-gas defrost
- Upgrade warehouse freezer doors
- Condenser upgrades

FINANCIAL ANALYSIS

- Projected annual kWh savings: 4,763,361
- Incremental cost of improved equipment: \$1,018,162
- **Incentive from Tacoma Power:** \$822,471
- **Projected annual cost savings:** \$174,327

PAYBACK PERIOD

- 1.2 years



Tony Caetano, Plant Manager
Americold

Case study New Construction

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Americold facility built for savings

TACOMA POWER HELPS COLD STORAGE FACILITY REALIZE VISION FOR ENERGY-EFFICIENT FUTURE

There are stone cold savings to be had in Tacoma's Tideflats. At Americold, a new cold storage facility, aggressive energy-efficient design has slashed more than 4.5 million kilowatt hours – about 75 percent – of the projected annual energy use, bringing it down to an estimated 1.5 million kWh a year.

"Energy efficiency is a priority at each of Americold's facilities," said Bob Brown, facility service manager. "It's more than just a nice thing to do. It's a daily focus of our business."

In fact, the upgrades have made such an impact at the 200,000 square-foot site that when Company Controller reviewed the low electric bills after the plant first opened, they called Project Manager Dave Fisher to ask when the facility would be running at full speed. Fisher laughed and said that it had been for some time already.

The facility was built with energy efficiency in mind for the long haul. "Anything that allows us to be efficient and keep costs down is something we're interested in," said Tony Caetano, plant manager.

Tacoma Power offered cash incentives for nine specific energy efficiency measures at Americold, resulting in a payment of more than \$800,000 to the company.

LEDs provide bulk of savings

Pallets of rice, juice and deli items line the warehouse on one particular day. Forklifts zip around, loading and unloading products, preparing to ship them to grocery stores around the Northwest. With the activity, LED lights on motion sensors pop on, brightening different areas of the building.

Using LEDs throughout the facility is the biggest source of energy savings at the cold storage warehouse. Although the energy code allows for high-intensity discharge (HID) lights, they're not the best option. HIDs are not responsive

enough to work with occupancy sensors and must be on continuously. And lights that are on all day create a lot of excess heat – not ideal for a company whose business depends on keeping product cool.

Using LEDs is like getting an extra bang for the buck – they use less energy and emit less heat, which results in less refrigeration needed. "They're also bright enough. The quality of light is excellent," Brown said. "They provide a good working environment."

A close second in energy savings is the facility's computerized refrigeration control system that controls the variable frequency drives (VFDs) powering the evaporator fans, condenser fans, and refrigeration compressors. The refrigeration control system efficiently operates all of Americold's refrigeration equipment. The VFDs save energy by running the fans and other equipment at less than full speed much of the time. And the fans and compressors are able to cycle off when no cooling is required in the freezer.

"There's a huge energy savings associated with VFDs because no piece of equipment ever runs at a higher rate than required. We always try to match the equipment to the load," Brown said. "You don't need an Indy car to go to the supermarket."

Tacoma Power also provided incentives for upgraded warehouse traffic doors; separate ice cream freezer suction; increased evaporator coil capacity; defrost return to higher suction; compressor and condenser upgrades; and fluorescent office lighting.

Additional benefits

There are also a host of non-energy benefits to the energy-efficiency measures installed:

- Automated control of the refrigeration system reduces the manpower needed to operate the system.

- VFD-equipped compressors provide quieter operation.
- Lighting occupancy sensors reduce operating hours and further extend the life of LED light fixtures.
- Reduced infiltration from the doors and variable air flow from the evaporators all help to maintain a more constant temperature.

The incentives that Tacoma Power paid to Americold reduced the expected project payback from six years to one and made the upgrades a feasible investment, with benefits for years to come.



Americold's compressor with control panel.

Power Programs

As you plan energy-efficiency upgrades to your business, start by taking advantage of Tacoma Power's rebates and incentives.

- **WALK-THROUGH ENERGY AUDIT**
- **ENERGY BILL PROFILE**
- **ZERO-INTEREST LOANS**
- **BRIGHT REBATES**

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